

## TITLE

SPA COVER REMOVERS

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## BACKGROUND OF THE INVENTION

Field of the Invention

10      **[0001]**    The present invention relates to spa cover removers for facilitating the removal of spa covers from their spas.

Description of the Related Art

15      **[0002]**    Spas, otherwise known as “hot tubs”, are usually provided with spa covers in the form of two rectangular pieces of foam enclosed in a sheet material and flexibly connected to one another along seams so that the spa covers can be folded in half wherein it is desired to remove them from their spas.

20      **[0003]**    Various different types of devices, known as spa cover removers, have been previously proposed for engaging the spa covers along with their seams and are pivotable relative to the spa housings to raise the spa covers and simultaneously to fold them.

25      **[0004]**    For example, United States Patent Number 6,000,072, issued December 14, 1999 to the present applicant, discloses a spa cover remover having a pair of parallel side bars pivotably connected to opposite sides of a spa, and a crossbar in the form of a roller extending between outer ends of the side bars. In use, a spa cover is folded over the crossbar during removal from a spa, and the side bars on the crossbar are then pivoted to lift the cover into an offset or raised position.

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**[0005]** To facilitate the movement of the spa cover relative to its spa, it has also been proposed to provide a spa cover remover incorporating springs. Spa cover removers of this type are disclosed, for example, in United States Patents Numbers 6,032,305, issued March 7, 2000 to John Tedrick, and 5,950,252, issued September 14, 1999 to Ian Fettes.

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**[0006]** It is, however, a disadvantage of these spring devices that the springs are exposed to the weather, and therefore liable to be damaged by corrosion, and the exposed springs of also involve a risk of damage to the clothing or the persons of those who operate the spa cover removers.

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#### BRIEF SUMMARY OF THE INVENTION

**[0007]** It is, accordingly, an object of the present invention to provide a novel and improved spa cover remover which incorporates springs which are enclosed.

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**[0008]** According to the present invention, there is provided a spa cover remover which has pivotal connections between supports and lifting arms at opposite sides of a spa housing, with a pair of tension springs contained in elongate housings and connected through linkages to ends of respective ones of the lifting arms.

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**[0009]** In a preferred embodiment of the invention, one end of each of the springs is retained by a connector which is adjustable to allow longitudinal adjustment of the spring and, thereby, to adjust the tension exerted by the spring during operation of the spa cover remover.

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## BRIEF DESCRIPTION OF THE DRAWINGS

5      **[0010]**      The present invention will be more readily understood from the following description of a preferred embodiment thereof given, by way of example, with reference to the accompanying drawings, in which :-

**[0011]**      Figure 1 shows a view in perspective of a spa provided with a spa cover in a closed position, and a spa cover remover;

10      **[0012]**      Figure 2 shows a view in perspective corresponding to that of Figure 1, but with the spa cover displaced into an opened or removed position relative to the spa;

**[0013]**      Figure 3 shows a broken-away view in side elevation of parts of the spa cover remover of Figures 1 and 2 in an opened condition; and

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**[0014]**      Figure 4 shows a view corresponding to that of Figure 3, but with the spa cover remover in a closed position.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

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**[0015]**      In Figures 1 and 2 of the accompanying drawings, there is shown a spa housing 10, on which there is provided a spa cover indicated generally by reference numeral 12 and a spa cover remover comprising a pair of spa cover remover assemblies indicated generally by reference numerals 14, provided at opposite sides of the housing 10. The spa cover  
25      assemblies 14 are similar to one another and therefore only one of these assemblies is illustrated and described in detail.

**[0016]** As is well known in the art, the spa cover 12 is in two halves 16 and 17 connected together along a seam.

**[0017]** The spa cover remover assemblies 14 each have a lifting arm 18 with a first, lower end 20 and an upper, second end 22, and a spa cover engagement structure in the form of a crossbar 24 interconnects the second ends 22 of the lifting arms 18. This crossbar 24 extends beneath the seam between the spa cover halves 16 and 17 for raising and folding the spa cover 12 as the lifting arms 18 of pivoted upwardly, as described below, into their raised positions, in which they are shown in Figure 2. Alternatively, the crossbar 24 could be replaced by a crossbar extending along the top of the cover and connected to the cover by suitable means. Another possibility is to employ as the spa cover engagement structure, instead of a crossbar interconnecting the ends of the ends 22 of the lifting arms 18, a pair of prongs extending from the arm ends 22 over only a part of the distance between the lifting arms 18.

**[0018]** Each spa cover remover assembly 14 also includes a housing or enclosure 26, which has a pair of rectangular brackets 28 secured by nuts and bolts (not shown) to the housing 26 and also secured by screws 30 to a respective side of the spa cover housing 10.

**[0019]** A pair of supports in the form of plates 32 are secured by nuts and bolts (not shown) to opposite sides of the housing 26 at one end of the housing 26 and a bolt 34 extending through openings in the supports 32 and secured by a nut 36 also extends through holes (not shown) in the lower end region of the lifting arm 18 and, thereby, forms a pivot connection between the lifting arm 18 and its associated housing 26.

**[0020]** As shown in Figures 3 and 4, a tension springs 38 extends along the housing 26 and has one end secured to a connector 40 and an opposite end connected by a link 42 to a pivot pin 44 extending transversely through the lower end of the lifting arm 18.

[0021] The housing 26 has an end 46, remote from the associated lifting arm 18, which is provided with an end closure 48.

5 [0022] A connector 40 connecting the spring 38 to the end closure 48 of the housing 26 comprises a box-shaped member 50, which is of square cross-section, and a threaded member in the form of a bolt 52 in threaded engagement with a square nut 54 within the box-shaped member 50. An eye-bolt 56, integrated engagement with a hexagonal nut 58 to within the box-shaped member 50 connects the connector 40 to the spring 38. The housing 26 is formed by a tube of square cross-section and the box-shaped member 50 is slidable  
10 along the interior of the housing 26 but cannot rotate about the longitudinal axis of the housing 26. The connector 14 is therefore adjustable, by rotation of the bolt 52, for adjusting the position of the spring 38 along the interior of the housing 26 in order to correspondingly adjust the tension exerted by the spring 38 during pivotation of the arm 18 from the lowered position, in which it is shown in Figure 4, into the raised or opened position, in which it is  
15 shown in Figure 3.

[0023] The link 42 is formed from a length of wire having eyes 58 and 60 at opposite ends, for engagement with the spring 38 and the pivot pin 44 of the lifting arm 18, respectively. Alternatively, the link 42 may be replaced by a link (not shown) made of Nylon webbing,  
20 which is more flexible and resistant to breakage.

[0024] When the spa cover remover is in use, and the spa cover 12 is in its closed or lowered position, as shown in Figure 1, the lifting arm 18 are in its lowered or closed, inclined position, as shown in Figures 1 and 4. In this case, as can be seen from Figure 4, the spring  
25 38 is under tension and, therefore, exerts a biasing force on the lifting arm 18, tending to raise the lifting arm 18 into its opened position, in which the lifting arm 18 is shown in Figures 2 and 3. The amount of the tension in the spring 38 can be adjusted by rotation of the bolt 52.

[0025] When the lifting arm 18 is manually pushed upwardly, about the pivot formed by the pivot bolt 34, the tension in the spring 38 assists in the raising of the spa cover 12 into the position in which the spa cover 12 is shown in Figure 2.

5 [0026] The lifting arm 18 is also formed by a square-sectioned metal tube, which is closed at its lower end by a plastic end closure 62. The link 42 extends through a slot 64 in one side of the lifting arm 18, so that the pivot 44 and the link eye 60 are enclosed and concealed within the interior of the lifting arm 18.

10 [0027] With this arrangement, the spring 38 is entirely enclosed and concealed within the interior of the housing 26 and, therefore, is protected from the elements and from catching the clothing or body parts of a person operating the spa cover remover.